MESO-AMERICA AS A LINGUISTIC AREA

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That Meso-America constitutes a legitimate linguistic area has been questioned. To address this question, concepts of 'areal linguistics' are here surveyed and refined. Proposed Meso-American areal traits are reconsidered against these findings, and are compared with those of other established linguistic areas. Meso-America proves to be a particularly strong linguistic area. These results contribute both to the study of Meso-American languages and to an understanding of areal linguistics generally.*

In recent years it has been proposed that Meso-America (henceforth MA)—defined basically as a culture area extending from central Mexico through northern Central America—is a linguistic area. The first attempts at characterizing the area were made by Hasler 1959, Kaufman 1973, 1974a,b, Campbell 1971, 1977, 1978a, 1979, and Campbell & Kaufman 1980, 1983 (see also Bright 1984, Rosenthal 1981); nevertheless, doubts have been expressed (cf. Hamp 1979, Holt & Bright 1976, Suárez 1983a). Some have thought that MA is not a single, well-defined area in the sense of others recognized in the literature, such as the Balkans or South Asia, but rather may be composed of several smaller, regionally defined areas (cf. Hamp 1979). For that reason, our primary purpose here is to investigate MA in detail from an areal viewpoint. However, to determine MA's status requires us first to clarify the nature and definition of linguistic areas in general. We will do this in §§1–3, and then return to the characteristics of MA in §4.

1. DEFINITION OF AREAL LINGUISTICS. As broadly conceived, AL deals with the results of the diffusion of structural features across linguistic boundaries. As commonly viewed, linguistic areas are characterized by a number of linguistic features shared by various languages—some of which are unrelated, or are from different subgroups within a family—in a geographically contiguous area. The phenomena of the linguistic area are also referred to at times by the terms 'convergence area', 'Sprachbund', 'affinité linguistique', 'diffusion area', 'adstratum' etc.[1] However, when it comes to more precise definitions, there is considerable controversy concerning just what AL is.

* We wish to thank William Bright and Sarah G. Thomason for helpful comments on earlier versions of this paper; but we do not mean to imply that they are necessarily in agreement with our use of their statements. We also acknowledge the Instituto de Investigaciones Filológicas, Universidad Nacional Autónoma de México, for providing Lyle Campbell the opportunity to engage in full-time research in 1981–82, during which time he did the research for this paper and wrote up a preliminary version. Terrence Kaufman and Thomas Smith-Stark have evaluated the original manuscript and made various additions to it. Thus the list of authors reflects not only alphabetical order, but relative input to the final product. We three authors are in essential agreement concerning the arguments and conclusions.

[1] Areal phenomena are, to a greater or lesser degree, related to such other areas of study as multilingualism, substrata, superstrata, linguistic geography, borrowing, and language shift or main-

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Many attribute the formal birth of AL to Trubetzkoy's famous proposition 16, presented at the First International Congress of Linguistics (1928:17–18):[2]

> 'Gruppen, bestehend aus Sprachen, die eine grosse Ähnlichkeit in syntaktischer Hinsicht, eine Ähnlichkeit in den Grundsätzen des morphologischen Baus aufweisen, und eine grosse Anzahl gemeinsamer Kulturwörter bieten, manchmal auch äusser Ähnlichkeit im Bestande der Lautsysteme—dabei aber keine gemeinsamen Elementarwörter besitzen—SOLCHE SPRACHGRUPPEN NENNEN WIR SPRACHBÜNDE.' (emphasis in original)

Trubetzkoy's term *Sprachbund*, roughly a 'union of languages', came to be used as a technical term in English. The name 'linguistic area' (LA), as a translation of *Sprachbund*, was first employed by Velten 1943, and was made well known by Emeneau 1956. Trubetzkoy (1931:233–4) compared AL to traditional dialect geography, but with 'isoglosses' which extend beyond the boundaries of a single language. This view of LA's as akin to the features characterizing cross-language linguistic geography is common in later literature (cf. Jakobson 1931, 1938).

tenance; in this paper, however, attention is restricted to AL. We can thus, we believe, attain our goals of examining the results of language contact which create a linguistic area, without getting lost in the details of the mechanisms which produced these results.

In this context, certain relevant but less important studies may be mentioned. Some use the term 'areal linguistics' or 'area linguistics' in the sense of dialect geography within a single language (cf. Kurath 1972, Goossens 1973); this usage is not relevant to the concerns of this paper. Again, the Italian 'neolinguistic' school has declared itself a champion of AL; however, so far as we can determine, it has contributed nothing new to the concept. Their dedication to linguistic geography seems motivated by an extremist reaction against neogrammarian sound laws, where they follow Schuchardt (see Spitzer 1922) and Gilliéron (see Gilliéron & Roques 1912). See Bertoni 1911, 1923, 1925, Bàrtoli 1925, 1928, 1929, 1933a,b, 1939, and Bonfante 1945, 1947; cf. also Hall 1946.

[2] We do not wish to suggest that the study of areal phenomena began with Trubetzkoy. Areal considerations have been with us almost from the beginning of the formal study of language (cf. Kopitar 1857, who made some Balkan areal features known; see also Miklosich 1861, Sandfeld 1930). Schuchardt championed the views that there are no rigid geographical boundaries between languages, and that language mixture occurs; he antedated Schmidt 1872 as the author of the 'wave theory' (Wellen-hypothese; see Spitzer 1928:165, 431).

Developments in the study of American Indian languages also played an important role. Powell became so caught up in diffusionism that it threatened to prevent him from thinking in genetic terms, causing him to doubt his own classification (cf. Powell [1891] 1966:216–17). His doubts about our ability to separate the effects of genetic inheritance from diffusion are echoed in work by Boas, by Dixon & Kroeber, and to some extent by Sapir. While Boas and Sapir apparently held similar views about borrowed structural features and genetic relationships at one time, they became quite polarized toward 1920, in what is now a famous dispute (Darnell & Sherzer 1971). Boas was skeptical about the possibility of distinguishing shared similarities stemming from structural diffusion from those resulting from genetic relationship; while Sapir, by contrast, came to believe that the effects of borrowing, particularly in morphology, would never be profound. Sapir's views prevailed in America, and subsequent study of American Indian languages was characterized by much reductionism in the number of postulated genetic units. Boas' reservations were almost fully forgotten in America, but received attention in Europe, where they markedly influenced the Prague School (see Trubetzkoy 1931, Jakobson 1938, 1944); from there, interest returned to America (Emeneau [1956] 1980:107).

An important part of the American background is the areal/typological approach characteristic of Dixon & Kroeber 1903, 1913—practiced early also by Boas and Sapir—in which the descriptions of individual languages included typological comparisons with other languages of a geographical region (cf. Kroeber 1960:17–18; Darnell & Sherzer 1971).

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An influential recent definition, especially pertaining to studies of native American languages, is Sherzer's (1973:760):

> 'A LINGUISTIC AREA is defined here as an area in which SEVERAL linguistic traits are shared by the languages of the area and [in which] furthermore, there is evidence (linguistic and non-linguistic) that contact between speakers of the languages contributed to the spread and/or retention of these traits and thereby to a certain degree of linguistic uniformity within the area. It is important to remember that languages which are unrelated or distantly related may very well and probably do disagree with regard to many traits and yet still [be] in the same linguistic area according to the above definition, since they share SEVERAL traits (which one might want to call diagnostic traits).'

Issues over which opinion has been divided include the number of isoglosses required to define a LA, and whether they must bundle—or whether a single isogloss is sufficient. For some scholars, isogloss-bundling is diagnostic (cf. Trubetzkoy 1931:234; Sherzer 1973:760; Masica 1976:179; Katz 1975:12, 16; Holt & Bright 1976; Emeneau 1980:2). Nevertheless, few have insisted on the bundling criterion. Many view AL as akin to traditional dialectology, where isoglosses frequently fail to group at the borders, but are found more concentrated around some core without abrupt boundaries—and where the extension of individual isoglosses outward from the core may vary greatly (cf. Emeneau [1965b] 1980:128, 136; Ramanujan & Masica 1969:550; Winter 1973:140; Masica 1976:6, 170–71, 179; Henderson 1965:431; Joseph 1983). Moreover, following the analogy of dialectology, some linguists have noted that isoglosses of one LA may cross those of another (cf. Jakobson 1944:193, Becker 1948:23, Weinreich 1958:378–9, Winter 1973:140, and Haarmann 1976:24).

Given that it is difficult to find isogloss-bundling at the boundaries of LA's, some scholars have defined a LA as any group of neighboring languages which share any diffused or convergent structural features, even a single trait. Thus Masica (172) views a single areal isogloss as the minimum defining feature: 'Linguistic areas are apparently phenomena of differing magnitudes, starting from the limiting case, the area defined by a single trait' (cf. Bright & Sherzer 1976:236, Trubetzkoy 1931:345, Jakobson 1931:139). Katz makes a single, synchronic isogloss the basis of his definition (16):

> 'Von einem Sprachbund kann man sprechen, wenn:
> (a) zu einer gegebenen Zeit
> (b) ein zusammenhängendes geographisches Gebiet, das
> (c) von mindestens einer Sprachgrenze durchzogen ist,
> (d) von mindestens einer Isoglosse umspannt wird.'

That is, no sharp boundary can be drawn between LA's which share a single diffused trait and those which share many. One might attempt to justify this point of view by considering such analogies as: How many grains of sand does it take to make a heap? How many birds are needed to constitute a flock? or How many students are required to make a class?

The conclusion that a LA might adequately be defined on the basis of a single shared feature is disputed by many scholars. For them, a LA defined by a single isogloss would be trivial. Furthermore, there is a widely-shared feeling that particular LA's share several traits. In principle, there is no meaningful

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way to distinguish LA's defined on the basis of several features from those based on a single shared trait, if the latter are considered non-trivial. Thus the question should be posed not in the form, Does some entity qualify as a LA?, but rather, How strong or weak is a particular LA? That is, we can think of a continuum of LA's from those weakly defined, on the basis of a single shared feature, to much stronger areas based on many diffused elements. This approach to defining LA's also implies a means of evaluating their strength, to which we now turn.

2. EVALUATION. One strategy for improving the definition of LA's has been to propose criteria of evaluation. For some scholars, this amounts to mere counting of the number of shared traits. For others, it involves ranking them in some evaluative scale according to the varying social, cultural, or historical circumstances which gave rise to the areas. It is worth looking into some of these in order to understand AL better.

One explicitly stated approach to evaluating the strength of LA's is that of Katz (p. 16) which is followed (at least implicitly) by several others:

> 'Es ist zwar klar, dass durch "near-universals" konstituierte Sprachbünde als solche nicht sehr interressant sind, dieser Mangel lässt sich aber ausgleichen, wenn wir eine "Wertskala" aufstellen, die besagen soll: Ein Sprachgebeit, das von mehr Sprachbundisoglossen umschlossen ist, ist auf dieser Skala höher zu bewerten als eines innerhalb von weniger solchen Isoglossen.'

This amounts to a 'more-the-merrier' proposal, where the existence of more isoglosses is taken as more highly valued.

Attempts to establish means of evaluating LA's make us realize that different types of LA's indeed exist. These differences depend on the circumstances that gave rise to them and contributed to their development, as indicated by Thomason & Kaufman (1975:27):

> 'The various areas so identifiable, however, are not of a uniform type. In some of the areas in question, there is current institutionalized multilingualism, either multilateral or unilateral. In others there has been massive shift in the past, with, however, some speakers of the languages shifted-from still around. In still others there has been gradual diffusion of features over long centuries, without high degrees of multilingualism or massive shift. It might be profitable to try to separate these types, but at present we have no foolproof method of doing so.'

(Cf. Masica 1976:173, Martinet 1952:123, 1956.) If distinct types of LA's can have such varied historical backgrounds, then it follows that they may differ greatly in their composition and character—and in the way that their shared traits are interrelated, both within individual languages and across languages. This brings us to the second major approach to defining LA's, which requires historical evidence.

3. THE HISTORICIST APPROACH. Perhaps the most important evaluative attempts have been based on a realization of the different historical factors which go into the creation of LA's. Masica (173) treats as significant the distinction between LA's which are the relics of past contacts, no longer active, and others which are in the process of formation and extension because of on-going in-

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teraction and change. Nevertheless, linguists have been divided in their opinions about the need for, or value of, historical facts in areal investigations. One group's approach has been merely to catalog the similarities found in a particular area—allowing these similarities to suggest diffusion, but without carrying out the research necessary to demonstrate the actual borrowing. This is basically a reliance on 'circumstantial evidence'. This 'circumstantialist' approach, as we will call it, can be useful—particularly in the preliminary stages of investigation, or in LA's where reliable historical facts are difficult to obtain. Even so, one would like to be able ultimately to separate real areal features—those resulting from diffusion—from historical accidents, which may result from undiscovered genetic relationships, universals, onomatopoeia, parallel or independent development, sheer chance, etc. Unfortunately, many circumstantialists have made no attempt to carry out the historical program (cf. Haas 1969, 1976, 1978; Sherzer 1973, 1976, Sherzer & Bauman 1972; Campbell 1977, 1978a; Trubetzkoy 1928, 1931; Bright & Sherzer 1976; Holt & Bright 1976; Kaufman 1973).

The sharpest criticism of this type of AL concerns the selection of features to be considered areal. Since nearly everyone considers LA's to be the products of diffusion, features designated as evidence for a LA should result from borrowing, stemming from mutual influence. As already seen, some hold that a LA may be defined by any similarity that happens to be shared among contiguous languages. However, if the selected shared features can be explained equally well by accident, universals, genetic factors etc., then such a LA makes no sense as the product of diffusion; it begins to seem like a mere linguistic typology, which might involve adjacent languages having no relationship.

The other main group of arealists link their definition, or at least their research practice, more directly to historical proofs, maintaining that features designated as areal should be demonstrably diffused. We call this the 'historical' approach, followed by the 'historicists'. It is instructive to see why these scholars insist on historical evidence, and to consider their criticisms of the circumstantialists.

In this respect, Jacobsen (1980:205), speaking of Sherzer 1976, calls for the historical program:

> 'The obvious way of making further progress in these matters ... is to go beyond a mere cataloging of the presence or absence of a category in a language to a study of the actual means used for its expression and to a reliance upon the findings of historical linguistics as applied to the several languages and families.'

Hamp 1977 also sharply criticizes Sherzer 1976 and the circumstantialist approach. His comments on the relation of AL to genetic classification are directly to the point:

> '... while the comparative method is unquestionably an historical study, the field of areal linguistics is no less so; for it too is occupied with analysing the result of specific, if multiple, linguistic events of the past. Both the comparative method and areal linguistics are historical disciplines—twin faces of diachronic linguistics, if you will.' (279)
>
> '[Sherzer's] methodology seems to make far too little provision for these distinctions [AL and comparative linguistics] that I consider essential ... his study would lie properly within the realm of typology ... for areal, i.e. ultimately specific historical, questions it may be damaging

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> in two main ways. The conclusions may result in a listing of a catalog of trivia; and the starting parameters may well have missed the most interesting and crucially tell-tale characteristics.' (281)
>
> 'Such areal questions can be approached meaningfully and fruitfully only if they are treated in specific terms for what they are—the results of developments with historical depth and specificity.' (282)

(Cf. Winter 1973:147, and Silverstein 1978 for similar criticisms.) We conclude, then—with Bright 1976, Hamp 1977, and Winter 1973—that our goal should be to determine the historical facts which explain similarities among languages, regardless of whether they result from common heritage from some proto-language, or from diffusion.

Several other considerations, which we do not take up in detail in the interest of saving space, are also important in evaluating the strength of different LA's. These deal with the weight of individual areal isoglosses; all borrowings are not equal. Some should count more, given the relative difficulty of borrowing, their degree of integration into the borrowing grammar, etc.

First, highly 'marked', exotic, or unique shared traits weigh more than does material that is more easily developed independently, or found widely in other languages. Nevertheless, such exotic borrowings tend to reside at a more superficial position in linguistic structure. Given what is known of linguistic universals, it would be unnatural to expect truly unique or very bizarre borrowed traits to be found deep inside a grammar. Thus we suspect that, the more deeply integrated or interwoven into the basic fabric of a language a diffused feature is, the greater its areal value—and even greater to the extent that it is both integrated and marked.

Second, it has at times been claimed that a language can borrow features only when it already has a pre-existing model (cf. Joseph, 205). Related, but in an opposing vein, is the notion that the grammars of certain languages have gaps which somehow reduce their efficiency: when they come into contact with languages exhibiting the useful but missing constructions, they incorporate them handily—recognizing what they have been missing, and requiring only minimal foreign stimulation to acquire them (cf. Campbell & Mithun 1981). We do not argue for either of these claims. However, since such borrowings would be easier to achieve, they should count for less. Such arguments do, in any case, point out the importance of considering not only what features are borrowed, but also whether the borrowing languages are disposed to be receptive.

The integration of diffused traits into borrowing grammars has been called 'installation' (Jacobsen 1980) and 'naturalization' (Gair 1980). It obviously takes time or intensive contact to install or naturalize foreign constructions; thus we might feel inclined to take them as strong areal indicators. However, it is often the case that such features are initially borrowed on a more superficial level; the internal forces of the grammar then 'snowball' (Joseph, 202) to achieve the integration, regardless of whether areal influences continue.

Third, the 'more-the-merrier' principle for evaluating LA's obviously needs refinement, given that the weight of individual traits depends on difficulty of borrowing. There is, however, another way in which it fails: Some aspects of grammar are universally linked, such that the presence of one may imply the

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presence of others. In such cases, should it prove universally impossible or highly unlikely for a language to have one grammatical feature—without, at the same time, exhibiting the others demanded by its presence—then it is hardly valid to count phenomena that cannot occur independently as multiple isoglosses. Such considerations deserve attention; however, passing over them now will not detract from our general exposition of AL or of MA.

From this discussion of AL, we may conclude, first, that most investigators view it as akin to traditional dialectology, but with isoglosses that extend beyond language boundaries. Second, LA's are entities of differing magnitudes, ranging from the controversial limiting case—defined by a single shared trait—to clearly stronger instances, with many shared features resulting from diffusion. Such features are of different weights, depending on how 'marked' they are, and how integrated into the respective grammars. Third, since areal isoglosses frequently do not bundle (and often overlap), it is of little use to attempt to define LA's based on the coincidence of structural traits at some boundary. Nevertheless, when bundling does occur, it can be taken as strong support for the LA involved. Finally, since it is generally agreed that meaningful LA's are the historical product of linguistic diffusion, the stronger LA's are those whose shared traits can be shown historically to be diffused—and cannot be ascribed to a common ancestor, to chance, or to universals.

4. MA AREAL TRAITS. Studies in the Meso-American LA to date have mostly been circumstantialist in orientation. This is understandable, given that areal studies in American Indian linguistics have typically been circumstantialist both because of tradition (cf. Darnell & Sherzer) and because of the frequent lack of adequate historical evidence for diffusion of traits. In what follows, we present a compilation of circumstantialist traits that have been proposed as areal features of MA, together with an evaluation of their usefulness for defining a LA. The list comes from traits proposed by Kaufman 1973, 1974a,b, Campbell 1971, 1977, 1978a, 1979, and Smith-Stark 1982, plus others that have come to our attention. In this evaluation, neighboring languages to the south and to the north are used as control cases for checking the areal nature of alleged MA traits. All relevant languages are shown on Map 1 (pp. 538–9); the accompanying Key (pp. 540–42) indicates genetic affiliations and bibliographical sources.[3]

[3] Some information and examples not otherwise referenced are from Campbell's records and field notes; these include Tepehua, Cakchiquel, Quiché, Kekchí, Nahuatl, Pipil, Xincan, Lenca, Jicaque, Cacaopera, Quechua, and Aymara. Mayan data not otherwise referenced are from Kaufman's files.

It should be noted that many of the dictionaries which we cite as sources also contain grammatical sketches. For general information on the classification and structure of MA languages, see Campbell 1979; Kaufman 1974a,b; Campbell & Kaufman 1980, 1983.

Our control languages are, of course, not like the control cases of, e.g., biologists; conceivably, an MA areal isogloss could lap over into some of our control languages. However, in this instance, several of our controls have no contact with MA (e.g. Bribri, Guaymí, Tonkawa, Yuman). In principle, languages found outside an area could once have been inside it, or could otherwise have been influenced through transported contact. However, in this case, geographical features make it highly unlikely that significant contact could have occurred. Thus these languages do indeed provide legitimate controls.

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Since the status of MA as a LA is at issue, we will begin our evaluation of areal traits by taking the strongest critical stance. That is, we will consider as convincing only features which are widely distributed within MA; we will eliminate traits which are also found beyond MA, or are limited in their distribution to smaller zones within MA. We also discount traits which may easily develop independently in language. Thus we emphasize features peculiar to MA, and general throughout it, but not beyond. We hasten to point out that this is in fact not a very realistic view of areal traits—or of their distribution, and mutual interaction one with another—but is taken here only to demonstrate MA as a strong LA, able to survive the most stringent scrutiny. In fact, all these operational constraints would tend to disqualify most real LA's. Thus, though unique or highly-marked features are especially persuasive, one cannot expect a LA to exhibit any abundance of exotic structural traits unknown elsewhere in the world. Similarly, changes that can easily take place independently, through parallel evolution, can also be triggered by the stimulation of language contact. Moreover, areal isoglosses often fail to bundle, and show crisscrossing patterns—some beyond the LA's borders, others restricted within the LA. LA's can be the product of such varied local borrowings, with different patterns of distribution. For this reason, it is only in rare and fortunate cases that we may expect areal features to meet the constraints employed here. To the extent that MA succeeds in displaying areal traits which meet these strong conditions, there can be little doubt about its validity as a LA. After this strict scrutiny, we will reconsider proposed areal traits of MA which do not meet these conditions, but nevertheless lend secondary support to defining the LA.

4.1. PHONOLOGICAL TRAITS. The following are some shared phonological phenomena in MA:

(a) FINAL DEVOICING OF SONORANTS. A rule which devoices final sonorants (usually *l r y w*, but also nasals and even vowels in some languages), is found in several Mayan languages (especially Quichean), in Nahuatl, Pipil, Xincan, Totonac, Tepehua, Tarascan, and Sierra Popoluca (e.g. Nahuatl /no-mi:l/ [nomi:ɬ] 'my field', Quiché /axa:w/ [axa:W] 'lord')—as well as in the more southerly Cacaopera and Sumu. While this rule seems to be borrowed in at least some of the MA languages which contain it, its distribution is quite restricted within MA; it reaches only a small and discontinuous portion of the languages of the area. Moreover, final devoicing of sonorants is not so peculiar phonetically that it could not have happened independently in these languages, though it is sufficiently uncommon to suggest possible diffusion. All these considerations make final devoicing of sonorants relatively unhelpful in defining MA as a LA.

(b) VOICING OF OBSTRUENTS AFTER NASALS. This is found in Xincan, Huave, several Mixe-Zoquean languages, Tarascan, and most Otomanguean languages, including Tlapanec-Subtiaba—as well as in Lenca and Jicaque; e.g. Guazacapan Xinca /ʔampuki/ [ʔambúki] 'snake', Copainalá Zoque /n-tɨk/ [ndɨk] 'my house' (Harrison & García 1981:405). This feature has at least two problems which prevent it from being a diagnostic trait of the LA. First, its distribution

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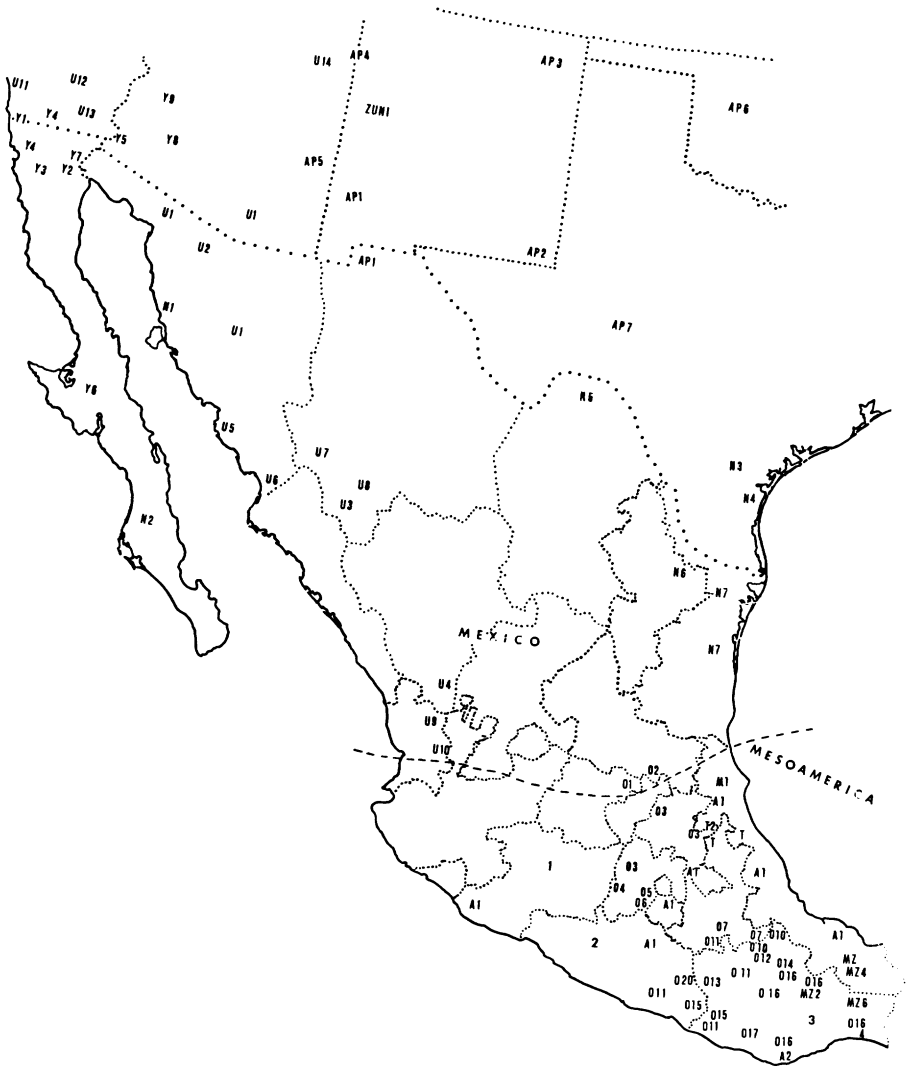

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KEY († = extinct)

OTOMANGUEAN
- Otopamean
  - O1 Chichimeco Jonaz (outside Meso-America): De Angulo 1933, Lastra 1984.
  - O2 Pame (some varieties outside Meso-America)
  - O3 Otomí: Echegoyen et al. 1979.
  - O4 Mazahua
  - O5 Matlazinca
  - O6 Ocuilteco (Tlahuica)
- Popolocan
  - O7 Popoloca
  - O8 Ixcatec
  - O9 Chocho: Mock 1977.
  - O10 Mazatec: Jamieson 1978.
- Mixtecan
  - O11 Mixtec: Alexander 1980, Bradley 1970, Daly 1973, 1977, Pensinger 1974.
  - O12 Cuicatec
  - O13 Trique: Good 1978, Hollenbach 1975.
- Chinantecan
  - O14 Chinantec (several varieties): Merrifield 1968, Robbins 1968, Rupp 1980.
- Amuzgo
  - O15 Amuzgo
- Zapotecan
  - O16 Zapotec (several distinct languages): Butler 1980, Pickett 1974.
  - O17 Chatino: Pride & Pride 1970.
- Chiapanec-Mangue
  - O18 †Chiapanec
  - O19 †Mangue
- Tlapanec-Subtiaba
  - O20 Tlapanec: Schultze 1938, Suárez 1983b.
  - O21 †Subtiaba

AZTECAN (= Nahuan, of the Uto-Aztecan family)
- A1 Nahuat(l)
- A2 †Pochutec
- A3 Pipil (includes Nicarao)

TOTONACAN
- T1 Totonac: Reid & Bishop 1974.
- T2 Tepehua

MIXE-ZOQUEAN
- Mixean
  - MZ1 Veracruz Mixe (includes Sayula Popoluca, Oluta Popoluca): Clark 1981, Clark & Clark 1960.
  - MZ2 Oaxaca Mixe: Lyon 1980, Van Haitsma 1976, Schoenhals 1965.
  - MZ3 Tapachultec
- Zoquean
  - MZ4 Veracruz Zoque (includes Sierra Popoluca, Texistepec Popoluca): Elson 1960, Foster & Foster 1948; Clark & Nordell 1984.
  - MZ5 Chiapas Zoque (Copainalá)
  - MZ6 Oaxaca Zoque

MAYAN
- Huastecan
  - M1 Huastec
  - M2 †Chicomuceltec
- Yucatecan
  - M3 Yucatec (Maya): Tozzer 1921.
  - M4 Lacandón

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M5 Itzá
M6 Mopán
Cholan-Tzeltalan (Greater Tzeltalan)
Cholan
M7 Chol: Aulie 1978, Warkentin & Scott 1980.
M8 Chontal (of Tabasco)
M9 †Cholti
M10 Chortí
Tzeltalan
M11 Tzeltal: Kaufman 1971.
M12 Tzotzil
Kanjobalan
Kanjobalan proper
M13 Kanjobal
M14 Jacaltec
M15 Acatec
Chujean
M16 Chuj
M17 Tojolabal
Motozintlec
M18 Motozintlec
Mamean-Quichean (Eastern Mayan)
Mamean
M19 Mam: England 1983.
M20 Teco
M21 Aguacatec
M22 Ixil
Greater Quichean
M23 Kekchí
M24 Uspantec
M25 Pokom (Pokomchí, Pokomam)
Quichean proper
M26 Sipacapeño
M27 Sacapultec
M28 Quiché
M29 Cakchiquel
M30 Tzutujil

UNAFFILIATED

1 Tarascan: Foster 1969, Friedrich 1971.
2 †Cuitlatec: Escalante 1962.
3 Tequistlatec (Chontal of Oaxaca): Turner 1971, Waterhouse 1980.
4 Huave: Stairs 1981.
5 Xincan (four languages: †Yupilitepeque, Guazacapán, Chiquimulilla, and Jumaytepeque)

NON-MESO-AMERICAN LANGUAGES

YUMAN: Langdon 1970, 1976, Winter 1976.
Y1 Diegueño (Ipai)
Y2 Kiliwa
Y3 Paipai
Y4 Tipai
Y5 Yuma (Quechan)
Y6 Cochimí
Y7 Cocopa
Y8 Maricopa
Y9 Yavapai

APACHEAN (Athabaskan family)
AP1 Chiricahua Apache

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AP2 Mescalero Apache
AP3 Jicarilla Apache
AP4 Navajo
AP5 Western Apache
AP6 Kiowa Apache
AP7 Lipan Apache

UTO-AZTECAN: Langacker 1977.
Southern
Piman
U1 Papago
U2 Pima (Upper and Lower)
U3 Northern Tepehuan: Bascom 1982.
U4 Southern Tepehuan
Taracahitic
U5 Yaqui: Lindenfeld 1973.
U6 Mayo
U7 Tarahumara
U8 Guarihío
Cora-Huichol
U9 Cora: McMahon 1959, Preuss 1932.
U10 Huichol
Northern
Cupan
U11 Luiseño
U12 Cahuilla
U13 Cupeño
Hopi
U14 Hopi

CHIBCHAN
C1 Cuna
C2 Guaymí: Alphonse 1956, Payne 1982.
C3 Boruca
C4 Bribri: Margery 1982.
C5 Guatuso
C6 Rama
C7 Paya: Holt 1974.

MISUMALPAN (perhaps part of Chibchan)
MS1 Mískito: Lehmann 1920, Thaeler n.d.
MS2 Sumu: Heath MS, Lehmann 1920.
MS3 †Matagalpa
MS4 †Cacaopera

OTHER NON-MESO-AMERICAN LANGUAGES
N1 Seri: Moser 1961.
N2 †Guaicurian
N3 †Tonkawa: Hoijer 1933.
N4 †Karankawa
N5 †Cotoname
N6 †Comecrudo
N7 †Coahuilteco: Swanton 1940, Troike 1981.
N8 Eastern Jicaque
N9 †Western Jicaque (El Palmar)
N10 †Honduran Lenca: Lehmann 1920.
N11 †Salvadorean Lenca (Chilanga): Lehmann 1920.
N12 Black Carib (Arawakan family)

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within MA is quite restricted, and it occurs in non-contiguous locations within the area. Second, it is so natural and common that it could have developed independently.

(c) VOWEL HARMONY. Some sort of vowel harmony occurs in Xincan, Huave, Mayan, Copainalá Zoque, Mazahua (Amador 1976), and Tlapanec—as well as in Lenca and Jicaque. This feature also fails to define MA as a LA, since details of the process vary in each individual case. The evidence is not sufficient to demonstrate diffusion, except possibly in Xincan and Lenca (see Campbell 1978a). The trait is shared by few languages in the area.

(d) FIXED (predictable) STRESS. Phonemic (contrastive) stress is very rare in MA, though it is known in Tequistlatec and Cuitlatec. A few languages share the specific stress rule in which the accent falls on the vowel before the rightmost consonant (i.e. V → V́ / ____ C(V)#), e.g. Oluta Popoluca (Mixean), Totontepec (Oaxaca) Mixe, and Xincan, as well as in Lenca and Jicaque. It is quite possible that this rule is shared because of diffusion, but its distribution is too restricted to meet our strict criteria for determining if MA is a LA. Moreover, fixed accent in the majority of the MA languages also does not help, since it is very common in languages outside the area and all over the world.[4]

(e) GENERAL SIMILARITIES OF PHONEMIC INVENTORIES include the following:

(e.1) Contrastive underlying voiced stops are absent from MA, except for a few languages where they are of recent origin, e.g. some Otomanguean languages, Huave, Tequistlatec, and Texistepec Popoluca (Zoquean), apparently from voicing after nasals with subsequent alteration or loss of the nasals. The languages just beyond MA seem to show voiced stops liberally—e.g. Sumu, Mískito, and Chibchan languages to the south; and Papago, Northern and Southern Tepehuan, and Tarahumara to the north.

(e.2) Contrastively voiced fricatives do not occur in MA, with the exception of a few Otomanguean languages (e.g. Mixtec and Trique), where they are of recent development.

(e.3) The lateral affricate /tl/ is generally absent, except in Nahuatl and Totonac; Tequistlatec has /tl'/, the glottalized counterpart of /ɬ/.

(e.4) Uvulars (postvelars) such as /q/ are found only in the Mayan and Totonacan families. Outside the area to the north, they are reasonably common, e.g. in Yuman and Northern Uto-Aztecan (where they are not original). To the south, they are absent until we get to the Andes.

(e.5) Aspirated stops and affricates are rare in MA, occurring only in Tarascan and in some Otomanguean languages (e.g. Chocho and Otomí, historically and phonemically from consonant clusters with *h* as a member), and in Jicaque (on the southern frontier of MA).

(e.6) Glottalized consonants are found in Tepehua, Tequistlatec, Mayan, Xincan, and Otopamean (historically and phonemically consonant clusters with

[4] Actually, some other languages might fit this rule by default—by having only final vowels and penultimate stress, or only final consonants and final stress; e.g., Quichean roots can only end in a consonant, and Quichean languages have final stress. Some Otomanguean languages have penultimate stress, and either no final consonants or /ʔ/ as the only permitted final consonant (e.g. Mixtec and Zapotec); this makes them almost conform to the rule.

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/ʔ/, Rensch 1978), as well as in Lenca, Jicaque, Coahuilteco, and Tonkawa—which are non-MA languages.

(e.7) Implosives are known only in a few Mayan languages and in Texistepec Popoluca. Several Mayan groups have /bʕ/ as the labial member of their glottal series. Some dialects of some Quichean languages have developed /qʕ/ from *q'. Tzutujil has further changed *t' to /dʕ/; dialects of Mamean languages also show /bʕ dʕ qʕ/ (or /gʕ/). Texistepec Popoluca, in contrast, has changed sequences of nasal + stop to voiced imploded stops. Given that Texistepec Popoluca and Mayan are not in contact, and that the Texistepec implosives are of recent origin, these languages clearly do not share implosion via diffusion.

(e.8) Tonal contrasts are known in all the extent Otomanguean languages (including Tlapanec), in Huave, and in some Mayan languages (Yucatec, Chontal, Uspantec, and the San Bartolo dialect of Tzotzil). Of our control languages, some of the Uto-Aztecan languages above the northern frontier of MA are also tonal (e.g. Northern Tepehuan and Cora-Huichol), as are Paya, Guaymí, and Bribri of the Chibchan family.

(e.9) Retroflexed fricatives (and affricates) occur in several MA languages: Mamean, Kanjobal, Jacaltec, Acatec (Mayan); Guazacapán and Chiquimulilla (Xincan—not contrastive); some Mixean languages; Chocho, Popoloca (Williams & Pierson 1950), Mazatec, Trique, Yatzachi and Guelavia Zapotec (Otomanguean); and allophonically in Tarascan. Retroflexed consonants are also found to the north in Huichol (allophonically), and in Yuman.

(e.10) A central vowel, /ɨ/ or /ə/, appears in Mixe-Zoquean; in several Otomanguean languages; in Huave, Xincan, Proto-Aztecan; in some Mayan languages (Proto-Yucatecan, Cholan, and dialects of Cakchiquel and Quiché); and allophonically in Tarascan. Such a vowel also appeared in Proto-Uto-Aztecan and persists in many Northern Uto-Aztecan languages; Jicaque also has /ɨ/.

In general, given our restrictions, these considerations of phonemic inventories do not serve to define a LA. On the one hand, the traits do not have a pan-Meso-American distribution; on the other hand, it is not possible in most cases to demonstrate that the presence or absence of some phoneme or series has resulted from diffusion. Possibly Nahuatl acquired /tl/ from its Totonacan neighbors (Proto-Uto-Aztecan certainly lacked this sound); and the Kanjobalan retroflexed fricatives and affricates apparently derive from Mamean influence within the Mayan family—but no such feature is widely enough distributed to delimit a LA. In a less constrained view of areal features, of course, some of these similarities might qualify, given that strictly local diffusion can also go into the creation of LA's.

We have concentrated here on phonemic contrasts, in part because of limitations on available information. But of course, subphonemic or allophonic traits are also subject to diffusion. An example is the final devoicing of sonorants (§4.11); note also the very widespread phonetic aspiration of final stops (cf. Mayan, Mixe-Zoquean, Pipil, Xincan etc., as well as Lenca and Jicaque).

4.2. MORPHOLOGICAL AND SYNTACTIC TRAITS. The following are some grammatical attributes shared among various MA languages:

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(a) NOMINAL POSSESSION. The possession of one noun by another typically has the form in MA languages of 'his-noun$_1$ (the) noun$_2$', meaning '(the) noun$_2$'s noun$_1$'—e.g. Quiché *u-ɕ'i:ʔ le: ačih* 'the man's dog', lit. 'his-dog the man'. (This order is the more widespread in MA, but the equivalent of 'the noun$_1$ his-noun$_2$' also occurs.) The construction is typical of most MA languages, and can be taken as a diagnostic trait of MA.[5] The isogloss coincides with the limits of MA as it has been defined both culturally and linguistically. The trait is not found in our control languages just beyond MA; i.e., Sumu and Mískito to the south lack it, as do Coahuilteco, Tonkawa, and the Uto-Aztecan languages to the north. Uto-Aztecan seems to confirm both the northern boundary and the diffusion of the trait within MA (cf. Rosenthal). This possessive construction in Proto-Uto-Aztecan had a pronominal copy of the possessor plus an accusative marker on the possessed noun (e.g. 'John-ACC his-dog' for 'John's dog'), although some Uto-Aztecan languages have simple juxtaposition of the possessed and possessor without pronouns. (Cf. Langacker, Rosenthal; Cupan languages in southern California have the construction 'man his-house'.) It is significant that Nahuatl has only the MA construction—which it acquired through contact with other MA languages, departing from the Uto-Aztecan pattern. It is also interesting that Cora and Huichol, which in some respects act like transitional languages—outside of MA, but evidencing a few of its traits—have a construction intermediate between the original Uto-Aztecan and the MA pattern, e.g. Cora *i nana-ra i pari* 'the boy's mother', lit. 'the mother-his the boy' (Langacker, 89–90).

(b) RELATIONAL NOUNS. Another feature shared by nearly all MA languages is that of relational nouns—expressing locative and related notions, but composed of a noun root and possessive pronomial affixes. These correspond to prepositions in English or Spanish. Examples from Pipil, Mam, and Chol are:

(1) Pipil
nu-wan 'with me' (*nu-* 'my')
mu-wan 'with you' (*mu-* 'your')
i-wan 'with him/her' (*i-* 'his/her')

(2) Mam (England, 71)
n-wiɕ-a 'on me' (*n-* 'my')
t-wiɕ 'on him' (*t-* 'his')
n-xaq'-a 'below me'
t-xaq' 'below him'

[5] This possessive construction is not in fact unique to MA; but that would hardly be expected, given the limited number of possessive types in the world's languages. Nevertheless, the construction is rare elsewhere, and is not found in MA's immediate neighbors. Ultan (23–4) found only 16 languages in his type B.1, characterized by personal possessive marking of the possessed noun. An examination of his examples shows most to be quite distinct from the MA pattern, where a salient characteristic is possessive pronominal prefixes on the possessed noun. For example, Turkish and Chamorro have suffixes; Cocopa uses affixes on a verb 'to have'; Ewe and Albanian employ independent words ('the animal its foot'). Yurok, Wiyot, Karok, and Acoma (of Ultan's sample), as well as Cupan, Diegueño, Navajo, and Menomini (which should be added to the sample) have forms equivalent to '(the) man his-house'; but these do not reflect the predominant MA pattern of possessed preceding possessor.

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(3) Chol (Warkentin & Scott, 27)
k-ik'ot 'with me' (*k-* 'my')
aw-ik'ot 'with you' (*aw-* 'your')
y-ik'ot 'with him/her' (*y-* 'his/her')

This isogloss coincides with that of nominal possession at the traditional borders of MA. The control languages to the south of MA—Sumu, Mískito, Paya, and Guaymí—do not contain relational nouns, nor do the northern border languages: Coahuilteco, Tonkawa, Seri, Yuman, or Uto-Aztecan. Since Proto-Uto-Aztecan had postpositions (Langacker, 92–3), relational nouns were apparently diffused into Nahuatl. Actually, some Uto-Aztecan postpositions are preserved in Nahuatl as locative suffixes; but these function differently from the relational nouns, which clearly reflect an innovation to the MA pattern. That is, in Nahuatl one says the equivalent of 'his-to my-father' rather than 'my-father-to', as would be typical in the UA pattern. Cora, again, appears to be intermediate; it has the basic Uto-Aztecan postpositional pattern with nouns, e.g. *mi-kiyé-hete* 'under that tree' (*mi-* 'that', *kiye-* 'tree', *-hete* 'under'); but it uses possessive pronominal prefixes, e.g. *ta-heté* 'under us' (*ta-* 'our'; McMahon, xv), much like the MA pattern. It seems clear, however, that Cora's MA possessive pronominal type with pronouns is of recent origin, resulting from postposing the locative to the pronoun. This is clearer in Northern Tepehuán, where nouns have postpositional locative endings—but pronominal forms take the same postposed locative endings, with objective pronominal prefixes. Since the object and possessive pronominal prefixes are not distinct, the pronominal locatives are clearly in agreement with the Uto-Aztecan postpositional pattern, with object forms of the pronoun affixes; but they appear also to resemble the MA pattern (if the pronominal affixes are taken as possessive forms, not distinct from the objective forms; cf. Bascom, 317–18). Mixe-Zoquean languages are similar, in that they too also contain postpositions (see below).

(c) VIGESIMAL NUMERAL SYSTEM. A counting system based on twenty is pan-Meso-American. While it is found in virtually every MA language, it has also reached a few languages just beyond the conventional borders of MA, e.g. Coahuilteco, Cora, Mayo, and Northern Tepehuán to the north, and Sumu, Mískito, and Guaymí to the south. Still, it does not extend much beyond MA; it is not known in Yuman languages, Seri, or Tonkawa; or Northern Uto-Aztecan languages; or in Chibchan languages (e.g. Bribri). We may conclude that this is also a true MA areal trait which was sufficiently strong to reach slightly beyond the conventional boundaries. As noted above, isoglosses typically fail to fall precisely into bundles, but often have varying extensions outward from an areal core.

Tequistlatec presents a representative example (Turner, 360):

(4)

1	*anuli*	20	*anušans* (*anu-* 1, *-šans* 'man')
2	*oge?*	30	*anušans gimbama?* (20 + 10)
3	*afané?*	40	*oge? nušans* (2 × 20)
4	*amalbu?*	50	*oge? nušans gimbama?* (2 × 20 + 10)
5	*amage?*	60	*afane? nušans* (3 × 20)
6	*agamts'ús*	80	*amalbu? nušans* (4 × 20)

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7 *agaytsí*	100 *amage? nušans* (5 × 20)
8 *abaygo*	400 *anušans anušans* (20 × 20)
9 *abella*	800 *oge? nušans anušans* (2 × 20 × 20)
10 *imbama?*	etc.

(d) BASIC WORD ORDER. It seems significant that only non-verb-final languages exist in MA, although the area is surrounded by SOV languages. MA has basic VSO (Mixtec, Trique, varieties of Chinantec, varieties of Zapotec, Mam, Nahuatl etc.); VOS (Xincan, many Mayan languages, Copainalá Zoque, Otomí, another variety of Chinantec etc.); and SVO (Huave, Mazatec, Tequistlatec etc.) Southern Uto-Aztecan languages characteristically exhibit VSO order; but Proto-Uto-Aztecan was an SOV language (Langacker, 24), and so are most of the other languages bordering MA—e.g. Tonkawa, Coahuilteco, Yuman, Seri; Lenca, Jicaque, Mískito, Sumu, Guaymí, and Bribri. Moreover, some cases of clear diffusion seem to be documented within the area; e.g., Xincan and Pipil apparently acquired VOS order from Quichean (Campbell 1978b).

The claim that MA contains no SOV languages bears comment, since it has been suggested that the Mixean languages may present a potential counterexample (Bartholomew 1983). Actually, Mixe-Zoquean languages conform to the MA non-verb-final pattern in ways that confirm the rule. That is, Mixe-Zoquean has certain constructions typical of verb-final languages, e.g. Noun + Postpositions, Adjective + Noun order, and Possessor + Possessed word order. However, the order of the main constituents—the verb and its Noun Phrase arguments—is not basically SOV. Some would interpret such inconsistent word-order typology as reflecting an earlier verb-final order; but even so, the fact that Mixe-Zoquean now departs from that postulated SOV order confirms the MA trait. Thus the typical Zoquean language (e.g. Copainalá Zoque) is VOS; one might suspect departure from supposed earlier (S)OV to this order under the influence of neighboring VOS Mayan languages.

More at issue is the basic word order in Mixean languages. Bartholomew (9) sees it this way:

> 'Zoque[an] languages tend to have the object after the verb. Mixe[an] does not have the ergative suffix on the noun and therefore has to use other strategies to identify the grammatical role of a noun phrase. There seems to be something of a preference to have the object before the verb.'

She actually presents no clear evidence for SOV languages; but she believes Coatlán (Oaxaca) Mixe to have relatively free word order, with cases of both SVO and SOV orders. While the limited Coatlán data available to us have no SOV examples (Hoogshagen 1984), an inspection of Tlahuitoltepec Mixe (Lyon 1980) suggests that the SOV interpretation is not accurate. Tlahuitoltepec sentences are mainly VSO:

(5) *yik?ompɨhk mani: nɨ:.*
heated Maria water
'Maria heated water.'

SOV occurs only as a marked, non-basic order when the particle *tɨ* 'already' (perfective) is present. Compare exx. 6a–b with 7a–b:

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(6) a. *ti kwo:n tihk tpo:pi.*
already Juan house whitened
'Juan already whitened the house.'
b. *kwo:n ic n?uk ti šyik?ohkiyi.*
Juan my dog already killed
'Juan already killed my dog.'

(7) a. *yik?atuhk kwo:n tihk.*
closed Juan house
'Juan closed the door.'
b. *yikmo??o?hk mani: maš?u?nk.*
cause.to.sleep Maria baby
'Maria put the baby to sleep.'

The (S)OV examples cited by Bartholomew for Coatlán Mixe occur with the same *ti* seen in Tlahuitoltepec:

(8) a. *ti jücy?aay adzimbijctäy ma töcy.*
PERF tobacco.leaf wrap.in.bundle LOC mat
'He wrapped tobacco leaves in a straw mat.'
b. *ti cuhuay mooc mucxy.*
PERF horse corn chewed.up
'The horse chewed up the corn.'

Hoogshagen (13) cites only two relevant Coatlán examples, both SVO:

(9) a. *he ?uŋdeh:ty ti ymo?oy j?uŋ he ?i:k.*
the father PF gave his.son the toy
b. *he tatpi:t he pi?k?ana? ak he kišy yahmo?oy he kway.*
the older.man the boy to the girl cause.to.give the horse
'The older man caused the boy to give the girl the horse.'

We conclude that Mixean is NOT a counter-example to MA non-verb-final pattern, since SOV is apparently a marked, non-basic order in these languages. None of the Mixe-Zoquean languages has SOV basic order for the main constituents—the verb and its nominal arguments.

An interesting case in the opposite direction is Chichimeco Jonaz, an Otomanguean language with SOV order. While all other Otomanguean languages are spoken within MA (and have non-verb-final order), Chichimeco Jonaz is spoken in Guanajuato, outside MA. It may have acquired its SOV order from neighboring languages beyond the borders of MA; if so, it is the exception which confirms the rule.

The isogloss demarcating non-verb-final languages is thus diagnostic of MA, and is valuable for defining the LA.

(e) ABSENCE OF SWITCH-REFERENCE. The languages surrounding MA on both sides have switch-reference—not found in any MA language, but known in Coahuilteco (cf. Troike), Seri, Yuman, and Jicaque. The absence of switch-reference coincides with MA; thus one might conclude that this constitutes an additional isogloss diagnostic of the LA. However, in view of the hypothesis that switch-reference exists only in SOV languages, its absence in MA may be

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a reflex of MA basic word order more than of areal diffusion (cf. Jacobsen 1967). This bears more study.

(f) INTIMATE POSSESSION. Typically, kinship terms and body parts are intimately possessed (either do not occur unpossessed, or require special morphological marking when unpossessed) in MA languages. Since this feature is characteristic of many languages throughout the Americas, it is not particularly useful for defining a LA in MA. The term 'inalienable' is widely used for this kind of possession, but it is semantically inappropriate.

(g) LOCATIVES DERIVED FROM BODY PARTS. Locative words in many MA languages are derived in a rather direct and obvious way from body parts, e.g. in Mayan, Mixe-Zoquean, Totonac, Tlapanec (Schultze, 245), Otomanguean, Tarascan, and Nahuatl:

(10) a. Mixtec (Alexander, 79)
čīhi 'stomach; in(side), under'
ini 'heart; in, inside'
nuu 'face; to, at, from'
šinī 'back; behind'
b. Cakchiquel
-pan 'stomach; in, inside'
-či 'mouth; to, in, at'
-ix 'back; behind'
-wi 'head-hair; on, on top of'

Actually, it is natural and common for languages to have a relationship between body parts and locative notions, as in Eng. *at the head of, at the foot of, at the mouth of, in back of* etc. Nevertheless, Meso-Americanists have noted that MA languages seem to share something beyond these ordinary associations: locative constructions which maintain their nominal character (see relational nouns above) but involve semantic associations not usually found in other parts of the world, e.g. 'stomach' for 'in', 'tooth' for 'to, at' etc. In spite of this feeling of something peculiar being shared in MA languages, it cannot be shown that the trait is diffused, and it is possible that some of these associations result from universal tendencies. Thus, while it coincides in some ways with other MA features, it is not sufficiently free of complications to be used for defining a LA.

(h) ABSOLUTIVE AFFIXES. Some MA languages have a nominal suffix called the 'absolutive', borne by nouns that have no other affix, e.g. Nahuatl *tlaškalli* 'tortilla-ABS', *no-tlaškal* 'my-tortilla'; Quiché *xolom-a:x* 'head-ABS', *a-xolo:m* 'your-head'. The 'absolutive' suffix has no real semantic content, but occurs on nouns which are otherwise morphologically isolated—i.e. show no other affixes. In MA, most Mayan languages have an absolutive, as does Nahuatl. These are not really equivalent, however: thus, in Quiché, the so-called absolutive suffix occurs only on a certain class of otherwise intimately possessed nouns, but in Nahuatl the absolutive is much more general, occurring with most nouns when they bear no other affixes. In the key languages surrounding MA, an absolutive is found in Paya and the Misumalpan languages on the southern border, and in the Uto-Aztecan languages to the north. This trait is not significant as an areal feature, since its distribution is very limited within MA,

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and it is also found outside the area. Also, there is no evidence that it is diffused, given that the languages containing it are not in contact.

(i) ABSENCE OF 'PLURAL' MARKERS ON NOUNS. In many MA languages, the 'plural' is either totally lacking or is limited to 'human' nouns. But this is not very helpful in areal considerations, since many other American Indian languages share this trait.

(j) NUMERAL CLASSIFIERS. In several MA languages, nouns after numbers appear with a classifier—a morpheme which indicates the class of noun being counted (somewhat akin to 'three HEAD of cattle', 'four LOAVES of bread'). Some examples are:

(11) a. Yucatec (Tozzer, 103)
hun-ku:l če? 'one tree' ('one-plant tree')
ka?-ku:l h?as 'two banana plants' ('two-plant banana')
oš-tú:l winik 'three men' ('three-ANIM man')
ka?-tú:l pè:k' 'two dogs' ('two-ANIM dog')
oš-p'é:l na 'three houses' ('three-INAN house')

b. Tzeltal (Kaufman 1971:100)
?oš lehč te? 'three plants' ('three flat-thing wood')
?oš tehk te? 'three trees' ('three plant wood')
lahun k'as si? 'ten chunks of firewood' ('ten broken-thing firewood')

c. Chol (Aulie)
ča?-koht čihmay 'two deer' ('two-animal deer')
ča?-p'ehl hab' 'two years' ('two-thing year')

Such numeral classifiers are found in many Mayan languages, Sierra Popoluca (Zoquean), Zapotec, Huave, Tarascan, and Nahuatl. Some of these cases may be the results of diffusion (e.g. within the Mayan family, cf. Hopkins 1970); however, the distribution within MA is too erratic to be significant in a pan-areal way. Also, noun classification systems both with and without numerals seem to develop easily and independently in language, and exist in many parts of the world—e.g. in Austronesia, southeast Asia, Australia, Africa, and other parts of the Americas (including, among our control languages, Guaymí and Bribri).

(k) NOUN INCORPORATION. Some MA languages have noun incorporation, a construction by which a nominal object may enter directly into a verb stem.

(12) Nahuatl
a. *ni-k-či:wa tlaškal-li.*
I-it-make tortilla-ABS
b. *ni-tlaškal-či:wa* 'I make tortillas'.
I-tortilla-make

(13) Yucatec
a. *t-in-č'ak-ah če?.*
ASP-I-cut-SUFF wood
b. *č'ak-če?-n-ah-en* 'I cut wood'.
cut-wood-INTR-SUFF-I

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In MA this trait occurs in Yucatec, Mam, Mixe-Zoquean, Mixtec, Trique, Totonac, and Nahuatl.

It is possible that the trait is diffused in some cases; probably Yucatec borrowed it from Mixe-Zoquean. However, it does not meet our strict criteria for areal considerations. Its distribution within MA is too limited, and it occurs widely in American Indian languages outside MA (cf. Kroeber 1910, Sapir 1911) and elsewhere in the world (Mithun 1984).

(l) BODY-PART INCORPORATION. Related to noun incorporation is the incorporation of special forms of body-part terms in the verb—sometimes as direct objects, more frequently as instrumentals. Pipil has many such cases:

(14) *tan-kwa* 'to bite' (*tan-* 'tooth', *-kwa* 'to eat')
ikši-ahsi 'to reach, overtake' (*ikši-* 'foot', *-ahsi* 'to arrive')
ma:-tu:ka 'to touch, feel' (*ma-* 'hand', *-tu:ka* 'to plant, bury')
mu-yaka-pitsa 'to blow one's nose' (*mu-* REFL, *-yaka* 'nose', *-pitsa* 'to blow')

Some Mixtec examples (Alexander, 49) are:

(15) *kata-xéʔé* 'will dance' (*kata* 'will sing', *xéʔé* 'foot').
čundaʔá 'will push' (from *čuʔun* 'will put', *ndaʔá* 'hand').

Body-part incorporation is found in Nahuatl, Totonac, Tarascan, Oaxaca Mixe, Sierra Popoluca (and Mixe-Zoquean generally), Tlapanec, Tarascan etc. Outside MA, it is found widely in western North America, e.g. in Yuman, Uto-Aztecan, Maiduan, Washo, Shasta, Achumawi (Sherzer 1976:125); and to the south, perhaps in Mískito and Bribri.

This trait has the same limitations as object noun incorporation; it is limited within MA, and well-known in languages outside the area. It is therefore of little value in MA areal considerations.

(m) DIRECTIONAL AFFIXES. Several MA languages have verbal affixes which indicate direction, typically 'toward' or 'away from' the speaker:

(16) Nahuatl
neč-wa:l-kwi in tlaškal-li.
me-hither-take the tortilla-ABS
'He brings me the tortillas.'

(17) Cakchiquel
y-e-b'e-n-kamisax
ASP-them-away-I-kill
'I'm going there to kill them.'

Some of these are Cakchiquel, Quiché, Tequistlatec, Mixe-Zoquean, Totonac, several Otomanguean languages (e.g. Otomí), and Nahuatl.

This trait too is found with considerable frequency in languages outside MA—e.g. Cora, Tonkawa, Wappo, Wintu, Yana (Sherzer 1976:126), Quechua, and Cashinahua (Montag 1981:574–5)—and its distribution within MA is not general.

(n) VERBAL ASPECT. Aspect is relatively more important than tense in many MA languages, e.g. Mayan, Tlapanec, Mixtec, Zapotec, and several other Oto-

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manguean languages. This is so common in the world's languages, however, that it can scarcely be considered a strong indicator of a LA, particularly since several other MA languages have strong tense systems.

(o) INCLUSIVE VS. EXCLUSIVE. The pronominal systems of several MA languages—e.g. Chol, Mam, Acatec, Jacaltec; Chocho, Popoloca, Ixcatec (Fernández 1961), Otomí, Mixtec, Trique, Chatino, Yatzachi Zapotec, Tlapanec; Huave; and several Mixe-Zoquean languages—distinguish 1st person inclusive and exclusive pronouns:

(18) Chol (Warkentin & Scott, 29)
honon la 'we' (inclusive)
honon lohon 'we' (exclusive)
(19) Copainalá Zoque (Harrison & García, 417)
ti 'our' (inclusive)
tis 'our' (exclusive)
(20) Huave (Stairs, 296)
ikora 'we' (subject exclusive)
ikor 'us' (object exclusive)
iko:¢a 'we' (subject inclusive)
iko:¢ 'us' (object inclusive)

While some of these may have acquired the contrast by diffusion, it is relatively easy for such a distinction to develop independently (cf. Robertson 1983 for such an explanation of the Mayan cases). The trait is both limited within MA, and common outside the area (e.g. Sumu, Mískito, Bribri, Quechua, Aymara, and many others have such a contrast). It therefore does not meet our rigid requirements as an areal feature of MA.

(p) 'ZERO' COPULA. An overt copula is typically lacking in MA languages in equational constructions with predicate adjectives or noun complements, as in Quiché *saq le: xa:h* 'The house is white' (lit. 'white the house'), *a:x-kar le ačih* 'The man is a fisherman' (lit. 'fisherman the man'). The great frequency of zero copula in the world's languages, including many American Indian tongues, makes this feature of little use in the investigation of MA areal phenomena; cf. Hebrew, Russian, Black English (all in present tense), and others.

(q) PRONOMINAL COPULAR CONSTRUCTIONS. A copular construction with pronominal subjects takes the form of the complement plus a pronominal affix in several MA languages, e.g.: Kekchí *winq-in* 'I am a man' (lit. 'man-I'), *išq-at* 'You are a woman' (lit. 'woman-you'); Pipil *ti-siwa:-t* 'You are a woman' (lit. 'you-woman'-ABS); Tequistlatec *a-šówde?* 'It is a church' (lit. 'it-church'), *n-ondá?a* 'I'm a devil' (lit. 'I-devil'; Turner, 327). Elsewhere in MA, this construction occurs in Mayan, Nahuatl, Chocho, Chinantec, Mazatec, Otomí, Oaxaca Mixe, Oluta Popoluca, and Sayula Popoluca.

It is difficult to evaluate the areal properties of this feature properly. Nevertheless, we have insufficient evidence to demonstrate that it is shared by diffusion; and its distribution, to the extent that it can be determined, is not general throughout MA. Therefore it is safest not to consider it significant for defining the area.

(r) ABSENCE OF A VERB 'TO HAVE'. Absence of a verb of possession 'to have' has been suggested as an areal feature of MA. Several languages have a con-

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struction equivalent to 'is', 'there is', or 'exists' plus a possessed noun, as in Cakchiquel: *k'o xun nu-¢'i?* 'I have a dog' (lit. '[there] is one my-dog'). This occurs in Mayan (but not Huastec), Mixe-Zoquean, Tequistlatec, Xincan, Chinantec, Mazatec, and Trique. Some languages that have a verb corresponding to 'to have' are Nahuatl, Huave, Huastec, and Mixtec. The absence of 'to have' is common in the world (e.g. in Finnish, Tamil, Sango, and Old Irish—cf. Ultan); and its distribution in MA is so incomplete that it can hardly count as a significant areal trait.

4.3. SEMANTIC CALQUES OR LOAN TRANSLATIONS. It has been observed, e.g. by Smith-Stark 1982, that many compound words, and words having multiple referents, are shared in MA languages through loan translations. The examples which have been noted are given in Table 1.

1. door: mouth of house
2. bark: skin/back of tree
3. knee: head of leg
4. wrist: neck of hand
5. calf: excrement/belly of leg
6. eye: fruit/seed/bean of face
7. bile: bitter
8. finger: child of hand
9. boa constrictor: deer-snake
10. moon: grandmother
11. ring: coyol palm-hand
12. witch: owl, sleep(er)
13. cramp: (associated in some way with) deer
14. fiesta, ceremony: (big) day
15. root: hair of tree
16. twenty: man
17. lime: (stone-)ash
18. egg: stone/bone of bird
19. wife: intimately possessed 'woman'
20. porcupine: thorn-opposum, thorn-lion, thorn-peccary, thorn-pig
21. cougar: red jaguar
22. anteater: honey sucker, suck-honey
23. to kiss: to suck
24. to smoke: to suck
25. branch: arm (of tree)
26. to marry: to join, to find
27. gold/silver: excrement of sun/god
28. eclipse: eat the sun/moon; the sun/moon dies; sun/moon to rot
29. coral snake: mother of driver ant
30. bladder: house (of) urine
31. vein: road (of blood)
32. canine tooth: dog-tooth, snake-tooth
33. molar: grindstone (metate)
34. edge: mouth
35. thumb: mother of hand
36. mano (of metate): hand/child of metate
37. poor: orphan, widow
38. rainbow: snake, cougar, turtle, squirrel, or weasel
39. otter: water-dog, water-fox
40. cedar: god tree
41. medicine: liquor, poison
42. to cure: to suck (to smoke)
43. pataxte (non-domesticated cacao): tiger-cacao (jaguar-cacao)
44. town: water-mountain
45. soot: nose/mucus of fire
46. to write: to paint, to stripe
47. to read: to look, to count, to shout
48. alive: awake
49. son and daughter: man's are distinguished, but a single term for woman's
50. head: bottle gourd (tecomate)
51. thirst: water-die
52. need: want, be wanted
53. enter: house-enter
54. cockroach: contains the root for 'house', often compounded with 'in' or something equivalent
55. feather: fur

TABLE 1.

Smith-Stark has shown that many of these calques have a limited distribution within MA; some are found in very few languages (e.g. 'root: hair of tree'). Nevertheless, of the 52 cases which he examined (some of them are combined under a single number here, and others which he did not consider have been

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added), he found that the following are widely distributed, and coincide with the borders of MA:

(a) 'Knee: head of leg'. One might suspect that this semantic association is natural enough for this proposed calque to have developed by itself. Nevertheless, the association was not found in Smith-Stark's control languages, either on the borders of MA or beyond; this suggests that it is indeed a valid areal borrowing.

(b) 'Boa constrictor: deer-snake'. The association of deer with snake seems arbitrary enough to conclude that this legitimately reflects MA areal interaction.

(c) 'Lime: ash, stone-ash'. Given that corn is soaked in water with lime where it is available (e.g. highlands), but with ashes elsewhere, to soften it for grinding, it is not too surprising to find a linguistic association between the two. This calque, then, derives from cultural facts about the preparation of corn in MA, and for that reason is established as a strong areal feature.

(d) 'Wrist: neck of hand'. Although it is not difficult to imagine a natural connection here, such an association is not found in Smith-Stark's control languages. This is then an areal trait.

(e) 'Egg: stone of bird, bone of bird'. This is another calque found only in MA, and thus an areal feature of MA.

(f) 'Vein: road (of blood)'. It is also possible to imagine this semantic connection developing independently, but the association does not appear in Smith-Stark's control languages.[6] This too, then, is a MA areal feature.

(g) 'Molar: grindstone (metate)'. Again, it is possible to imagine this semantic association developing from the nature of the two objects. Nevertheless, the connection seems specifically MA, not being found in Smith-Stark's control languages.

(h) 'Edge: mouth'. This association is also found throughout MA and not in the control languages, though one could perhaps expect a natural connection.[7] Still, given its distribution, it is a feature of MA.

(i) 'Thumb: mother of hand'; 'Finger: child of hand'. These semantic associations seem sufficiently arbitrary to support the MA area, given that they are found throughout MA but not in the control languages.[8]

(j) 'Gold or silver: god-excrement, sun-excrement'. This calque is clearly MA and not the result of accident.

(k) 'Alive: awake'. This semantic relationship could perhaps result from chance; but distribution within MA, and not outside, makes it seem a legitimate areal feature.

(l) 'Town: water-mountain'. The distribution of this loan translation fits

[6] But in South America, Cavineña (Key 1963) and Sirionó (Schermair 1957) appear to have the equivalent of 'blood-road' for 'vein'.

[7] Compare South American Cashibo (Shell 1965), where 'mouth' and 'edge' are related.

[8] See the discussion in Brown & Witkowski 1981 of 'people' = 'digit' metaphors. They find two of 23 North American languages to have the 'thumb' = 'mother' and 'finger' = 'child' associations; in South America, one of ten languages has the former, three of ten the latter. While the MA construction is perhaps a bit more specific as 'mother/child of hand', these cases need to be kept in mind in evaluating this calque.

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Smith-Stark's requirements of occurring in various extremes of the MA geographical area, found in such languages as Nahuatl, Pochutec (Boas 1917), Oluta Popoluca, Sayula Popoluca, (Sierra) Totonac, and Mazatec.

(m) 'Porcupine: thorn-opossum', or 'thorn' plus some other animal. Although this distribution makes it seem areal, we cannot rule out that the semantic connections derive from the physical character of the animal. Eng. *porcupine* is ultimately from 'pig' + 'thorn'; Spanish forms such as *puerco espín* 'pig thorn' and *zorro espín* 'fox thorn' attest recent formations. Perhaps, then, this feature is to be given less credibility areally, even though its distribution is appropriate for such an interpretation.

Taken as a group, these calques constitute strong evidence of diffusion within and throughout the MA linguistic area.

Most of the MA traits listed above are shown in Table 2 (pp. 556–7). A 'plus' means the language has the trait, a 'minus' indicates its absence. A question mark means that available evidence suggests the plus or minus given, but does not demonstrate it conclusively. Parentheses indicate that the language has the trait as indicated, but perhaps not in its canonical pattern—i.e. perhaps with occurrence limited to certain constructions or particular dialects. A blank means that no information is available in the sources consulted (listed in the key to Map 1).

5. MA IN SUMMARY. So far we have considered areal linguistics in general, and some circumstantialist traits that have been proposed in favor of a LA in MA. We now hope to come to some conclusions. Many of the circumstantialist features have turned out not to meet our tight constraints for defining a LA: they were either too restricted in their distribution, or were amply attested beyond the area. In several cases, the historical information available is insufficient to demonstrate borrowing; but in other cases, fortunately, the historical evidence is clear. For example, Proto-Uto-Aztecan is sufficiently well-known to make clear when Nahuatl has changed to become more MA. The comparative evidence for several other language families is also sufficient to determine borrowing in individual cases, as discussed above.

After careful scrutiny, five features are found to encompass the traditional MA area so conventionally defined by both linguists and anthropologists. These are:

(a) Nominal possession (of the type *his-dog the man*).
(b) Relational nouns.
(c) Vigesimal numeral systems.
(d) Non-verb-final basic word order, to which absence of switch-reference is correlated.
(e) Several widespread semantic calques.

In effect, these five isoglosses coincide at the borders of MA—except for vigesimal numbering, which extends a bit beyond. For some scholars, a single shared trait would have been sufficient to define a LA. In our study, five isoglosses enclose the area and bundle at its borders. This constitutes extremely strong evidence for, and confirmation of, MA as a LA.

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TRAIT NUMBER:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
MAYAN																															
Huastec	+	+	+	VOS	+	+	+	+	+	−	−	−	+	+	−	−	+	−	+	−	+	−	−	−	−	−	−	+	−	−	−
Quichean	+	+	+	VOS	+	+	+	+	+	−	−	−	+	+	−	+	+	+	+	−	+	(+)	−	−	−	−	+	+	−	−	(+)
Mam	+	+	+	VSO	+	+	+	+	+	−	−	−	(+)	+	+	+	+	+	+	−	+	(+)	−	−	−	−	−	+	−	−	−
Chol	+	+	+	VOS	+	+	−	−	+	+	−	−	−	+	+	+	+	+	−	−	+	(+)	−	−	−	−	−	+	−	−	+
Tzeltal	+	+	+	VOS	+	+	−	−	+	+	−	−	−	+	−	+	+	+	−	−	+	(+)	−	−	−	−	−	+	−	−	−
Yucatec	+	+	+	VOS	+	+	+	−	(+)	+	+	−	−	+	−	+	+	+	−	−	+	−	−	−	−	−	−	+	−	−	+
MIXE-ZOQUEAN																															
Totontepec Mixe	+		+		+	+	+	−			+	+	+	−	+	+	+		−	+		+			−			−	−		+
Oluta Popoluca	+				+	+		−	−	+	+	+		−	−	+	+		−	−		+		−	−			−	−	+
Sayula Popoluca					+	+		−						−	+	+	+		−	−					−			−	−	+
Copainalá Zoque	+	+	+	VOS	+	+		−	−		+	+		−	+	+	+	+	−	−	+	−	+	(−)	−			+	−	−	+
Sierra Popoluca	+	+	+		+	+	+	−	−	+	+	+	+	−	+	+	+	+	+	+	+		+	−				−	−		+
Texistepec Popoluca						+		−		+	+	+		−	+	+			+	+											+
TOTONACAN			+			+	+	−	+	+	+	+	+	−	−				+			−	−		−			−		−	+
OTOMANGUEAN																															
Otomí	+		+	VOS	+	+	+	−	+	−	−		+	−	+	+	+			+			−	(+)	−	−	(+)	(+)	+	+	−	+
Mixtec	−	+	+	VSO	+	+	+	−	(+)	−	+	+		+	+	+	+	−		+	+	(+)	−	+	+	−	−	−	+	+	−	+
Trique	(+)	(+)	+	VSO	+	+	+	−	+	(−)	+			−	+	−	−	+	+	+	+	−	+	(+)	−	−	−	−	+	−	−	−
Mazatec	+	+	+	SVO	+	+	+	−	+	−					+	+	(+)	+	+	+	+	−	−	−	−	−	−	−	+	−	−	−
Chocho					+											+	+	+						(+)	−	−	(+)				
Chinantec	+	+	+	VSO	+	+	+	−	+	−			+	+	+	+	±	+		+			+	+		−	−	−	+		+	−
Zapotec	+	+	+	VSO	+		+	−	(+)	−	−	+	+	+	±	+							+	(+)	−	−	−	−	+	±		
Tlapanec	+	+	+	(VOS)	+	+	+	−	+	(+)	+	+	−	+	+	−	−			−	+	+	−	+	−	−	−	−	−	(+)	−	−
Huave	+	−	+	SVO	+	+		(+)	+	+				−	+	+				−	+	(+)	+	(+)	−	−	−	−	+	(+)	+	+
Cuitlatec	+	(+)	+	SVO	+	+			+				+							−	+	−	+	−	−	−	−	+	−	−	+	+
Tarascan	+	+	+	SVO	+	+	+	−	−	+		+	+	+	−				(+)		+	−	−	−	−	−	+	−	−	(+)	(+)
Tequistlatec	+	+	+	SVO	+	+	+	−	−	−			+	+	−	+	+	+	+	+	+	−	(+)	−	+	−	+	−	−	−	−
Xincan	+	+	+	VOS	+	+	+	−	−	−	−	−	−	+	±	+	+	+		+	+	+	−	−	−	−	−	+	−	(+)	+
Nahuan	+	+	+	VSO	+	+	+	+	−	+	+	+	+	−	−	(−)	+	−	+	−	+	−	−	−	+	−	−	+	−	−	−

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CONTROL LANGUAGES																															
Cora	(+)	−	+	VSO	+	+	+	+	−	−	+	+	+	−	−		−	−	−	−		−		−	−	−	−	−	+	(+)	+
Northern Tepehuan	−	−	+	VSO	+			+	−		+	+		(+)	−	+	−	(+)	−	−		−	+	−	−	−	−	−	+		+
Other Southern Uto-Aztecan	−	−	±	VSO	+	+		+	−	−	+	+		(−)	−	(+)	−	(−)	−	−		−	(+)		−	−	−	−	±	−	−
Northern Uto-Aztecan	−	−	−	SOV	+	+		+	(+)	−	+	+		(+)		+	−	(−)	−	−		−	−	−	−	+	−	−	−	−	+
Coahuilteco	−	−	+	SOV	−	+	−	−	−	−		−			−	+	+	+	−	−		−	(+)	−	+	−	−	+	−	−	−
Tonkawa	−	−	−	SOV	−	−			−	−	+	−	+	−	−							−	+	−	−	−	−	+	−	−	−
Seri		−	−	SOV	−					−										−	−		−	−	−	−	−	−	−	−	−
Yuman		−	−	SOV	−	+	+		+	−	(+)	+	+	+	−							−	−	−	−	+	−	−	−	+	(+)
Lenca				SOV	+	+		−		−	+	−		−	−					+	+	+	−	−	−	−	−	+	−	−	
Jicaque		−	−	SOV	−	+		−	+	−	−	−	−	−	−					+		+	−	−	−	−	+	+	−	−	+
Mískito	−	−	+	SOV			−	+	−	−		(+)		−	+	(−)		−		−		−	+	−	−	−	−	−	−	−	−
Sumu	−	−	+	SOV		+	+	+		−	−			−	+	−		−	+	−			+	−	−	−	−	−	−	−	−
Paya	−	−						+		−	−	−		−	−			−	−				−	−	−	−	−	−	+	−	
Guaymí	−	−	+	SOV			−		−	+	−			−	−			−	−	−		−	−	−	−	−	−	−	+	−	−
Bribri	−	−	−	SOV			−	−	−	+	+	+		+	+	−	−	−	−	−		−	+	−	−	−	−	−	+	−	−

TABLE 2. Numbered columns refer to the following features:

1. Nominal possession ('his-N the N')
2. Relational nouns
3. Vigesimal numeral systems
4. Basic word order: no SOV orders
5. Absence of switch-reference
6. Inalienable possession of body-part and kin terms
7. Locatives derived from body parts
8. Absolutive nominal affixes
9. Absence or limited occurrence of 'plural' markers on nouns
10. Numeral classifiers
11. Noun incorporation
12. Body-part incorporation
13. Verbal directional affixes
14. 'Aspect' more important than 'tense'
15. Inclusive vs. exclusive pronominal forms
16. 'Zero' copula
17. Pronominal copular constructions with affixes
18. Absence of a verb 'to have'
19. Final devoicing of sonorants
20. Voicing of obstruents after nasals
21. Vowel harmony
22. Presence of the stress rule: V → V́ / ____C(V)#
23. Contrastive voiced stops
24. Contrastive voiced fricatives
25. Presence of the lateral affricate (*tl*)
26. Presence of uvulars (*q* etc.)
27. Presence of aspirated stops and affricates
28. Presence of glottalized consonants
29. Contrastive tones
30. Presence of retroflexed fricatives (and affricates)
31. Presence of a central vowel (/ɨ/ or /ə/)

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However, if we look at MA in a more conventional way—without the strong distributional restrictions which we imposed above—then MA has much more support as a LA. That is, typical LA's such as South Asia and the Balkans (considered below) are characterized by different sorts of diffusion. Some are restricted locally, and do not extend throughout the area; some reach beyond the borders of the area; some overlap, or show criss-crossing isoglosses from other LA's. Having established the legitimacy of MA as a LA on the bases of strict criteria, we feel it safe to re-assess certain of the traits discussed, considering them to provide further support for MA as a LA to the extent that they have been diffused across language boundaries. The aggregate of such features in fact corresponds to the situation in other established LA's. We suggest that the following traits listed in Table 2 lend supplementary support to MA as a LA, either because they appear demonstrably diffused in some instances or because their peculiar character is broadly MA in nature: 7, 9, 10, 15, 17, 19, 20, 22, 30.

While we have limited ourselves to structural features, many MA languages also share traits that are perhaps better considered part of an ethnography of communication than of a formal grammar—so-called 'Sprechbund' features. Among these are the particularly MA form of ritual language with paired semantic couplets, called *huehuetlatolli* in Nahuatl and *ɸ'ono:x* in Quiché (cf. Ocuilteco, Pipil, Xincan, all Mayan languages, Mixe-Zoquean); whistle speech (Mazatec, some Zapotec varieties, Mopán, some Nahuatl dialects, Totonac dialects); reverential or polite vs. familiar contrast for 2nd person address (Nahuatl, Quiché, Sipacapeño, Mam, Aguacatec, Ixil, Mixtec).

Also, since we have taken LA's to be characterized by diffused structural traits, as most arealists do (cf. Klagstad 1963:180), we have totally neglected any mention of lexical borrowing. However, the existence of such borrowing is quite natural within LA's. If we include Trubetzkoy's (1928:18) notion that LA's offer 'eine grosse Anzahl gemeinsamer Kulturwörter' as part of their defining characteristics, then MA fares well. For studies of widespread loan words in MA, cf Campbell 1976, 1978b, Campbell & Kaufman 1976, Justeson et al. 1985, and Kaufman 1976, 1980. Thus Sprechbund features and widespread loan words circumstantially strengthen our faith in MA as a LA.

This conclusion that MA is a 'strong' LA reflects our approach to defining LA's in terms of their strength, determined by the number and weight of shared traits. The true strength of MA, with five bundling isoglosses, can be understood only when MA is seen in comparison with the best-established LA's in the literature, i.e. the Balkans and South Asia. Obviously a detailed treatment of these two areas is far beyond the scope of this paper; nevertheless, some consideration is important in order to see just how strong MA is as a LA.

6. Comparison with the Balkans and South Asia. The languages which belong to the Balkan area are Rumanian, Bulgarian, Macedonian, Albanian, Greek, and perhaps Serbo-Croatian. Turkish, though not a member of the LA, also shares some Balkan areal traits. In Albanian, a member of the LA, the Geg (northern) dialect shares fewer Balkan areal traits than the Tosk (southern)

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dialect. Serbo-Croatian is controversial, in that some include it here, but others hold it to be a non-member (cf. Joseph, 131, 147; Comrie 1981:198). Thus Klagstad (179) includes Serbian (and Turkish), but excludes Croatian. This was roughly the position of Weigand (1925:8), who regarded Greek, Serbian, and Turkish as Balkan languages geographically, but not linguistically. Similarly, Georgiev (1977:9) recognizes 'core' Balkan languages, with the same three which 'restaient a la périphérie'. Schaller (1975:103) lists Greek and Serbo-Croatian not as 'first level', but rather as 'second level' Balkan languages, with Turkish at a third level. Birnbaum (1965:20) includes Serbo-Croatian only 'conditionally'. Scholars generally maintain that Serbian has more Balkan characteristics than Croatian. Asenova (1977:29) and Sarah Thomason (p.c.) hold the Torlak dialects of Serbian to be genuine core Balkan. The following features, usually accepted as characteristic of the Balkan area, are scrutinized like those of MA:

(a) A CENTRAL VOWEL (/ɨ/) or (/ə/). This is not found in Greek or Standard Macedonian, though it is in some Macedonian dialects.

(b) VOWEL HARMONY (or umlaut). This trait's history is clear in Rumanian, Bulgarian, and Greek, where a stressed vowel has been influenced by the stressless vowel of the following syllable (e.g. Rum. *o* > *oa* before a non-high vowel in the following syllable; otherwise it stays *o*; Alb. *u* > *ü* and *a* > *e* with *i* in the post-stressed syllable; Bulgarian shows an alternation between /ya/ and /e/ under similar conditions). These changes are sufficiently different in these languages, and are natural and widespread enough, to allow independent innovation to compete with the proposed areal explanation.

(c) SYNCRETISM OF DATIVE AND GENITIVE. In Bulgarian, Albanian, Rumanian, and Greek, the dative and genitive have fused in form and function. While this is generally considered a strong areal feature, such syncretism is not unusual. For example, many languages have possessive constructions where genitive and locative functions alternate—e.g. 'John's bicycle is' or 'To/at John is a bicycle' for 'John has a bicycle' (cf. Ultan). As Joseph (241) puts it, 'the dative/genitive merger ... surely must be viewed within the context of a general drift within Indo-European away from highly developed synthetic case systems—viewed from such a perspective, the convergence is perhaps somewhat less striking.'

(d) POSTPOSED ARTICLE. With the exception of Greek, Balkan languages postpose the definite article; this is perhaps the best-known Balkan feature. It is not unique; cf. the Scandinavian languages.

(e) PERIPHRASTIC FUTURE. Balkan languages have periphrastic futures with an auxiliary verb corresponding to 'want' or 'have'. Such a feature could evolve independently without difficulty, as it did in English ('future' from a verb that meant 'to want') and Vulgar Latin (from *habere* 'to have').

(f) PERIPHRASTIC PERFECT. Except for Bulgarian (and Macedonian?), Balkan languages have a periphrastic perfect with an auxiliary verb corresponding to 'have'. Historical evidence suggests that this is a borrowing in Greek and Albanian, probably from Latin. This same construction has diffused throughout much of Europe. Superficial similarity between Macedonian and Albanian per-

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fects formed with the verb 'have' have long been pointed out; however, 'these forms function in an entirely dissimilar manner in the hierarchical arrangement of verbal categories in their respective language systems, with the result that the forms are superficially comparable but the systems are not' (Joseph, 241).

(g) NO INFINITIVE. Balkan languages are said to lack infinitives, having instead constructions with finite verb forms, e.g. 'I want that I go' for 'I want to go'. This is considered a strong Balkan areal feature. Nevertheless, 'the Balkan languages differ rather dramatically in the extent to which they show the loss of the infinitive' (Joseph, 242). Macedonian lacks it, as does Greek, except for a productive remnant in *éxo*-perfects. In Bulgarian, too, it is basically absent, though the 'short' form of the earlier infinitive is used in restricted contexts (Joseph, 243). The situation in Albanian, Rumanian, and Serbo-Croatian is more complicated. In Albanian, the original infinitive has been replaced; of the two principal dialects, Geg has an infinitive which does not overlap with finite forms at all, while Tosk shows re-emergence of the infinitive—though the category may have additional finite functions (Joseph, 91, 100, 243). Rumanian's geographically separated dialects differ. Istro-Rumanian of Yugoslavia maintains the infinitives 'to a wide extent' (Joseph, 174, 177). The data on Arumanian, spoken in parts of Greece, Albania, and Macedonia, are unclear: its historical infinitive seems to function as a nominalization, but is used verbally in some instances (Joseph, 174–5, 196). The infinitive is a recognized category in Daco-Rumanian (of Rumania and Moldavia), but its use is quite restricted (Joseph, 161); it is lacking from Megleno-Rumanian, spoken in an area of Macedonian and Bulgaria (Joseph, 177). While it is often broadly reported that Croatian has infinitives, and that Serbian lacks them, the facts are not so simple. Only the Torlak dialects show complete absence of infinitive, rivaled by Banat of the Yugoslav–Rumanian border. Otherwise, eastern dialects vary greatly, ranging to comparatively wide use in the standard language. The western dialect group has the infinitive to a greater extent. Infinitive replacement is an on-going process, spreading from east to west (cf. Joseph, 132–7).

(h) PLEONASTIC USE OF PERSONAL PRONOUNS. Balkan languages employ personal pronouns in sentences with animate objects, thus marking the object twice; e.g. Rum. *I-am scris lui Ion* 'I wrote (to) John', lit. 'to-him I wrote him John', *i-* 'dative singular'.

(i) IDENTITY OF LOCATIVE AND DIRECTIONAL EXPRESSIONS. Greek, Rumanian, and Bulgarian do not distinguish formally between stationary locatives and directionals (with motion), e.g. Gk. *stin eláδa* 'in(to) Greece'. The syncretism is clear in Greek at least, where historically these were distinct. The lack of distinction between cases of location vs. motion perhaps results from independent development; cf. Eng. *He went in the house* vs. *He is in the house*, or Sp. *en* meaning 'in', either with or without motion (similarly Eng. *on* with and without motion). Moreover, to quote Joseph (241), 'the question of a dative/locative merger among Balkan languages changes when it is viewed in terms of the morphosyntactic alternations ... at one level there is such a merger in Greek, at another level the dative and locative are kept distinct from one another.'

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(j) NUMBERS 11–19. Except for Greek, the Balkan languages count 11 to 19 with a construction corresponding to 'one over/on ten', 'two over/on ten' etc., e.g. Rum. *unsprezece* 'eleven' from **unu-supre-dece*. While this feature is diffused, it seems almost lexical in character and therefore not difficult to borrow, with no particular impact on the grammatical fabric of the language. (The MA vigesimal system is much more profound; it required switching from the base-five or base-ten systems that historically lay behind the numbering systems of many of these languages.)

In summary, few Balkan isoglosses bundle at the LA's borders; some fail to reach all the Balkan languages, while others extend beyond. Of the strongest Balkan features, the postposed article is not in Greek; and the absence of the infinitive is highly varied in its distribution within the dialects of the languages—few qualifying completely with full absence, and several failing categorically (Geg Albanian, Istro-Rumanian etc.) Depending on Serbo-Croatian's Balkan status, loss either extends beyond the LA to several Serbian dialects, or fails to reach other dialects within the LA. The concept of an areal core from which isoglosses expand outward (Masica, 170–71; Joseph, 245) seems inappropriate for the Balkans. The language with the greatest number of areal features is Rumanian, on the northern border of the area; but Macedonian, the language considered most typically Balkan (Hamp 1977:281), lacks several of the areal traits. In sum, Traits (a)–(c) are strong areal indicators, but are not shared by all Balkan languages. Traits (d)–(f) may be good areal features, but are less persuasive, and are not distributed throughout the area in every case. Traits (g)–(j) seem weak. MA certainly compares well to these data. (For Balkan information, see Asenova 1977, Bernštejn 1968, Birnbaum 1965, 1966, Comrie 1981:197–201, Georgiev 1977, Gołąb 1959, Hamp 1977, Havránek 1932, Joseph 1983, Polák 1973, Sandfeld 1930, Schaller 1975, Weigand 1925).

The South Asian LA is far too complex for adequate treatment here. Nevertheless, even a vague characterization is sufficient to compare it to MA. First, the isoglosses do not bundle, or center around some definable core. They are distributed much like Balkan or MA traits: some extend far beyond South Asia, while others hardly cross the boundaries of neighboring languages. To quote Masica (170–71),

> 'The "trait core area" may or may not be clear, but there is typically a gradual attrition at the periphery of the distribution ... One classic example of this is the gradient from postpositions to prepositions ... (found, e.g., between India and Iran, in Ethiopia, and in China). Another is the gradient between preposed and postposed attributive adjectives (found, e.g., in Europe and the Mediterranean, and again in Burma). A third involves the explicator-verb phenomenon ... changing as we move through Tajik and Uzbek to languages more remote from India, or eastward to Burma.'

Henderson shows overlapping of isoglosses from the South Asian and Southeast Asian LA's, while Masica's map (180–81) of diagnostic areal traits for South Asia shows varied distributions. For example, retroflex consonants are found not only in India, but also in Iranian languages, in several Sino-Tibetan languages (including Chinese), and in some Southeast Asian languages. The absence of prefixes does not characterize the Munda family (within India); but

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it takes in Altaic, many Tibeto-Burman languages, Eastern Iranian, and some others outside the Indian subcontinent (Masica, 188). Double roots for personal pronouns are also absent in Munda, but are quite general in Indo-European languages outside India. Morphological causatives are found far beyond India—e.g. in Uralic, Altaic, and Iranian (Masica, 189). The conjunctive participle is also found in Uralic, Altaic, and Russian. The clitic particle *-api/-um* 'still, also, and, definite' is in Indo-Aryan and Dravidian, but not Munda (Emeneau 1974). The dative subject construction occurs also in languages of eastern Europe, Georgian, etc. The absence of a verb 'have' (cf. Table 2, feature 18) characterizes Altaic, Uralic, Russian, Arabic, Eastern Iranian etc. The SOV basic word order is also found in many languages to the east and west of India (e.g. most Uralic, Tibeto-Burman etc.) Concerning other features, and the non-bundling of isoglosses in India, Emeneau has said:

> 'In the earlier work on the Indian linguistic area a number of typological features were suggested as fulfilling the first requirement, viz. that they were pan-Indic and at the same time not extra-Indic ... Some, as it turned out, were features that were found only in some part of the Indian area; e.g., the feature of a complex set of numeral classifiers was found in the Indo-Aryan languages of the eastern end of the Ganges valley (e.g. Bengali, Assamese) and in several Dravidian and Munda languages included geographically in that part of the Indo-Aryan area (e.g. Dravidian Kurux and Malto, Munda Santali and Korwa), but the languages with the best parallels ... are the languages of Southeast Asia, of several families, and the eastern Ganges valley is interpreted as marginal to Southeast Asia ... Another marginal region in which it turned out that some Indian languages showed features connecting them with an extra-Indic linguistic area is the northwestern border between Indo-Aryan and Iranian, which contains also the Dravidian Brahui language and the isolate Burushaski ...' (1980:3–4)
>
> 'Unfortunately, I know of no demonstration of such a bundling of isoglosses. In fact, when in [Emeneau 1956] I treated India as a linguistic area, I made no attempt to demonstrate a bundling of isoglosses, but I rather discussed a number of traits that cross family boundaries in India and I was concerned ... to demonstrate the "Indianization" of Indo-Aryan, i.e. to demonstrate that Indo-Aryan at various periods shows traits that originated in Dravidian and spread over more or less wide Indo-Aryan territories. The affricate pronunciation of earlier palatals is a case of less wide distribution, since it concerns chiefly Marathi, southern Oriya, Telugu, and northern Kannada, and probably some minor languages of central India; i.e. this isogloss delimits a central Indian linguistic area involving certainly two, and probably three, families. Much wider distribution ... is seen in the isoglosses that represent the occurrence of retroflexes and the occurrence of non-finite verb forms ... What is of present interest ... is the further extension of this isogloss ... to include some of the Iranian languages.' ([1965b] 1980:128)
>
> 'The second pan-Indic isogloss ... is ... non-finite verb forms (gerunds, absolutives, or whatever they are called) ... It is certainly almost pan-Indic, although it may also be almost universal in Eurasia ...' ([1965b] 1980:130)
>
> 'Another isogloss ... was concerned with classifiers or quantifiers. This time the isogloss line includes part of northern and northeastern India but fails to coincide with the eastern boundary of the Indian subcontinent ... In fact, though this isogloss is an excellent one to use in demonstrating that a trait is shared by parts of the major families of India, it fails lamentably in demonstrating that India is a linguistic area and may be interpreted as showing that there are linguistic traits that occur in common in India and the rest of Asia.' ([1965b] 1980:131)

While few would doubt India's status as a LA, these quotes make it clear that its isoglosses fail to bundle. They are distributed widely beyond South Asia in some cases, and narrowly within it in others; they fail to have a common

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core area, and they overlap those of other LA's. In many of these cases, however, the historical evidence is sufficient to confirm borrowing and its direction (see Emeneau 1980), thereby establishing the areal value of the diffused traits (for details, see Emeneau 1956, 1962a,b,c, 1965a,b, 1971, 1974, 1978, 1980; Kuiper 1967).

In summary, MA as a LA fares very well in a comparison with India and the Balkans—the clearest LA's in the literature—with respect to number, kind, and distribution of areal features. Furthermore, the MA area displays five exclusive features which bundle approximately at its traditional borders. The conclusion is that MA is indeed established as a valid LA; in fact, it turns out to be among the very strongest that are known.

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